MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2018/2019

BDM1024 – DATABASE MANAGEMENT SYSTEMS
(All Section / Groups)

17 OCTOBER 2018
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 5 pages with 4 Questions only (including cover page).

2. Attempt **ALL FOUR** questions.

3. The distribution of the marks for each question is given.

4. Please write all your answers in the Answer Booklet provided.

Attempt **ALL FOUR** questions.

QUESTION 1

a) Explain what is meant by a Database Management System, and contrast it with a File Management System.

(7 marks)

b) Describe any **THREE (3)** examples of database systems.

(6 marks)

c) Applications built around file management systems have often been used to satisfy user requirements. Discuss any problems that arise with such systems, and what advantages a database management system could offer instead.

(12 marks)

(Total 25 marks)

QUESTION 2

Design an Entity Relationship (ERD) diagram for the following situation below. Specify primary keys, foreign keys and cardinality in your EERD. In cases where the below requirement specification is ambiguous, state clearly the assumptions which you have made for justifying your modeling choices.

The owner of Emerald Design Wallpapers has hired you as a consultant to design a database management system for his chain of three stores that sells wallpaper and accessories. He would like to track sales, customers and employees. After the initial meeting with him, you have developed a list of business rules and specifications to begin the design of an E-R Model. List of the business rules and details are:

- Customers place orders through a branch
- A customer may place many orders
- A customer does not always have to order through the same branch all the time
- Customers may have one or more accounts; although they may also have no accounts.
- Customer may be a member or non-member with Emerald Design Wallcoverings
- Accounts related information need to be recorded such as balance, last payment date, last payment amount and accounts type
- A branch may have many customers
- A branch may sell all items or may only sell certain items
- Orders are composed of one or more items

- Items may be sold by one or more branches
- An item can be composed of multiple items: for example, a dining room wall covering set may consist of wallpaper and borders
- Emerald Design Wall coverings employs 54 employees
- Each employee may have one or more dependents
- Employees can have one or more skills

(Total 25 marks)

QUESTION 3

Examine the DVD Tracking form for Victorious Sdn Bhd as shown below and answer the following questions:

Bieber Pte Ltd *DVD RENTAL Management*						
Dvd No:4566 Title : Believe Distributer # : 0014-345 Distributor Name: Hollywood Distributor Distributor Address:27,Hollywood Street,California, USA Email : nickhollywood@gmail.com						
Rental#	**Rental Date**	**Member #**	**Member Name**	**Address**	**Contact**	**Return Date**
R001	2/01/12	34555	Justin	56,St.Kilda RD,LA	45666777	5/01/12
R002	23/02/12	54221	Ian	54,Tenessea,Mt.Gett	90777754	27/02/12
R003	02/03/12	65278	Jennette	32,Fisher St,Maggie	56778097	5/03/12
R004	12/03/12	87332	Selena	55,Yarra Velly,Mel	897565443	18/03/12
Total Hires : 4						

Describe and illustrate the process of normalizing the data for the DVD Rental History form to First Normal Form (1NF), Second Normal Form (2NF) and Third Normal Form (3NF).

(Total 25 marks)

QUESTION 4

a) Given the following relations, generate **SQL** statements for the following queries.

TUTOR (**TutorID**,CertDate,Status)

TutorID	CertDate	Status
100	1/05/2011	Active
101	1/09/2011	Temp Stop
102	25/11/2011	Dropped
103	29/11/2011	Active
104	5/12/2011	Active
105	9/12/2011	Temp Stop
106	18/12/2011	Active

STUDENT (**StudentID**, Read)

StudentID	Read
3000	2.3
3001	5.6
3002	1.3
3003	3.3
3004	2.7
3005	4.8
3006	7.8
3007	1.5

MATCH HISTORY (**MatchID**,TutorID,StudentID,StartDate,EndDate)

MatchID	TutorID	StudentID	StartDate	EndDate
1	100	3000	1/10/2011	02/09/2012
2	101	3001	1/15/2010	12/30/2010
3	102	3002	2/10/2010	12/15/2011
4	106	3003	6/01/2011	11/28/2011
5	103	3004	6/01/2011	11/28/2011
6	104	3005	28/5/2011	01/30/2012
7	104	3006	7/02/2011	09/02/2012

    i.   How many tutors have a status of Temp Stop?

(4 marks)

   ii.   List the tutors who took the certification class in October 2011.

(4 marks)

  iii.   How many students were matched with someone in the first five months of the year 2011?

(5 marks)

iv.   Which student has the highest Read score?

(3 marks)

b) Given the following relations, write **SQL data definition commands** for each of the following queries.

   STUDENT (**StudentID**,StudentName)
   FACULTY (**FacultyID**,FacultyName)
   REGISTRATION (**StudentID,SectionID,Semester**)

   i.   How would you add an attribute Class to the Student table?

   (3 marks)

   ii.   How would you remove the Registration table?

   (2 marks)

   iii.   How would you change the Faculty Name field from 25 characters to 40 characters?

   (4 marks)

   (Total 25 marks)

End of Page